

of the Indian meteorological service no other meteorological institution has developed a method of making dependable seasonal forecasts.

While the volume has been prepared with the needs of European forecasters in mind, it will be helpful to others as well, since many of the atmospheric processes described are of general occurrence, modified locally, of course, by the distribution of land and water and other peculiarities due to geographic factors.—A. J. H.

WEATHER ELEMENTS AFFECTING THE 1924 WINTER-WHEAT CROP IN ILLINOIS

The 1924 winter-wheat crop in Illinois was the poorest in average yield per acre since 1916. Insect pests were almost negligible, so it is inferred that the low yield in many counties was due to weather conditions. The percentage, by counties, of the 1924 yield per acre to the 14-year average shows that in general the yield was good north and west of the Illinois River. Very little winter wheat is grown in the northern counties, where the percentages are high. On the other hand, the percentages are low in one of the most important producing areas, the Illinois counties in the vicinity of St. Louis.

There were no adverse weather conditions prior to January, and wheat continued in good condition as a rule. January was a cold month. On the 5th the minimum temperature ranged from -4° to -25° at the extreme ends of the State, with little or no protection in the center and south, where the tops were frozen back. The temperature was less severe in the south. On the 21st it ranged from -11° to -24° throughout the northern division and much of the central, but with a general snow cover. The late-sown wheat was damaged by freezing and thawing during the latter half of February. May was unusually cold and cloudy, retarding the advance of vegetation. The winter's damage was progressively worse from north to south, there being considerable abandonment, and at harvest time the crop varied in condition from mostly good in the north to largely poor in the south.—C. J. Root.

CALIFORNIA FIRE SEASON CLOSED BY TIMELY RAINS

The most disastrous fire season that has occurred in California in a decade was closed this month by timely fall rains. Two years of markedly deficient rainfall was the outstanding factor which brought about this critical condition. The 1924 fire record surpassed, in number of fires and total area burned, that of 1917, a record fire year, also one of the driest seasons ever experienced in the State.

During the period January 1 to October 20 there were 2,439 forest, brush, and grain fires in California, which burned over 827,000 acres—an area greater than the State of Rhode Island—and caused an estimated loss of over \$5,000,000 worth of natural resources and improved property. Thirty-two per cent of all fires were caused by lightning and 68 per cent were due to careless acts of man. Of the man-caused fires, 38 per cent were traced to smokers, largely users of "tailor-made" cigarettes, and campers were responsible for 13 per cent; incendiaries, 14 per cent; brush burners, 8 per cent; railroads, 6 per cent; lumbering operations, 4 per cent; and miscellaneous causes, 17 per cent.

Out of the total of 2,439 fires, 1,890 were within or adjacent to national forests and 549 were on State or

private lands. Government land burned over amounted to 365,332 acres, or less than 2 per cent of the national forest area of the State. Private and State lands burned totaled 461,668 acres. The United States Forest Service spent \$920,000 on fire suppression during the season.

Outstanding features of the 1924 fire season were: Four fire fighters killed on the fire line; the occurrence of over 100 large fires, ranging from 2,000 to more than 50,000 acres in area; the closure to public use of 10,000,000 acres of national forest land, and restrictions on camping and smoking placed on several million additional acres; the intensive state-wide educational campaign by the fire emergency organization sponsored by the Forest Service, State Board of Forestry, and the California Development Association, and the splendid backing given the fire-prevention movement by the press, organizations, and public-spirited citizens.—*United States Forest Service California District News Letter, October 31, 1924.*

THE EXTINGUISHING OF A FOREST FIRE BY SEA FOG

(Reprinted from Science Notes in Science, November 21, 1924)

A heavy dripping fog rolled in from the Pacific Ocean and put out effectively a fierce forest fire which had been burning for days in the Olympic peninsula southwest of Port Angeles, Wash. This is the only time recorded in northwest forestry of the occurrence of such a phenomenon. With no indication of rain and lacking water with which to fight the advance of the flaming menace, foresters watched the fire making progress toward the town of Quilcene, beyond which lay valuable tracts of big trees, when suddenly the wet fog descended. Like a huge gray cloud it settled down upon the forest, enshrouding everything. The fire fighters fled in terror lest they become bewildered and lost on the mountain sides. Soon the pungent smell of cedar and hemlock smoke disappeared and by mid afternoon, when the fog lifted, there remained but a few smoking dead logs, while all about the charred trunks of former merchantable trees dripped with water from the providential fire extinguisher.

WEATHER MAPS AT SEA

It may be interesting to recall the successive attempts that have led up to the preparation of daily synoptic weather maps on board ocean steamers.

As early as 1907 sporadic radio reports of meteorological observations made on ocean-going vessels were communicated to weather services on shore for use in weather forecasting, but the first organized effort to construct a daily synoptic weather chart at sea was the one conducted by Dr. P. Polis, director of the meteorological observatory of Aachen, Germany, on a voyage from Europe to the United States and return on the steamship *Kaiserin Auguste Victoria*, in August, 1908.¹

It was not until after the war that the matter was revived, at which time the National Meteorological Service of France, cooperating with the Compagnie Générale Transatlantique, developed a system of collecting meteorological reports and preparing therefrom twice-daily synoptic weather charts on the steamship *Jacques Cartier*, Captain Chabot. These charts were based on reports from continental and oceanic areas and were unusually complete in scope and detail. The most

¹ Polis, P. Wireless telegraphy in the service of modern meteorology, MO. WEATHER REV., 36: 407, and Chart IX, August, 1908.